## REMARKS

Claims 1 through 24 remain in this application. Claims 1, 6 through 10, and 14 through 18 have been amended.

### Objections to the Specification

The Office Action objected to the specification because of improper arrangement and suggested to include the text beginning on page 17 as an appendix to the specification. A substitute specification is submitted herewith to amend the specification accordingly.

### Claim Rejections under 35 U.S.C. 103

The characterizations of claims in the Office Action are objected on the grounds that the invention is not limited to the embodiments disclosed, but is capable of numerous rearrangements, modifications and substitutions without departing from the spirit of the invention as set forth and defined by the claims.

The Office Action rejected claims 1 through 19 under 35 U.S.C. 103(a) as being unpatentable over the Chang article in view of U.S. Patent 5,760,940 to Frigo (the Frigo reference). However, the Frigo reference and Chang article either alone or in combination fail to disclose or suggest the requirements of the claims.

### Claim 1 and dependent claims 2 through 9

Claim 1 requires designing an operable optical span; performing a margin analysis on said operable optical span to determine how much change said operable optical span can tolerate before said operable optical span becomes an inoperable optical span and determining a margin limit for the optical span equal to the tolerated change.

The Chang reference fails to disclose the requirements of the claims. First, the Chang reference nowhere describes designing an operable optical span but merely a general to define models of a network system. It nowhere states that one of the steps is to design an operable

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optical span. Furthermore, it fails to describe performing a margin analysis on an operable optical to determine how much change said operable optical span can tolerate before said operable optical span becomes an inoperable optical span in one or more case types. As stated in the Office Action, the Chang reference does not disclose determining the margin of the optical span. Since there is no mention of optical span or determining a margin, there can be no disclosure or teaching that performing a margin analysis on said operable optical span to determine how much change said operable optical span can tolerate before said operable optical span becomes an inoperable optical span in one or more case types.

The Frigo reference fails to add to the teachings of the Chang reference as it merely describes monitoring "the rate of signal degradation in the individual fibers of an optical communication network." The Frigo reference is describing an operating network. It is determining an operating system threshold for signal strengths transmitted to ONUs. It can not disclose determining acceptable margins to design changes of an optical span since the disclosed feeder fibers in the Frigo reference are already in operation and installed.

There is no suggestion in the references to meet the requirements of the claims. As stated at page 2, line 29 through page 3, line 4 of the specification:

"[T]raditional optical route design tools require the user to specify the amount of "unallocated margin" that is to be used in the design of an optical span which can result in the installation of a failure prone optical span or an underutilized optical span."

There is no description in the Chang reference to indicate that the OPNET simulation package is performing any different than the above description. The Frigo reference can not disclose any type of design changes of an optical span since the disclosed feeder fibers in the Frigo reference are already in operation and installed.

Independent claim 10 and dependent claims 11 through 17

Claim 10 requires a processor capable of determining whether a design of an optical span is an operable optical span and further capable of performing a margin analysis on said operable optical span to determine how much change said operable optical span can tolerate before said

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operable optical span becomes an inoperable optical span in a plurality of case types; and a display, coupled to said processor, capable of presenting the results of the margin analysis to a user.

The Chang reference fails to disclose the requirements of the claims. The Chang reference nowhere describes the requirement, *inter alia*, of performing a margin analysis on said operable optical span to determine how much change said operable optical span can tolerate before said operable optical span becomes an inoperable optical span in a plurality of case types. As stated in the Office Action, the Chang reference does not disclose determining the margin of the optical span. Since there is no mention of optical span or determining a margin, there can be no disclosure or teaching that performing a margin analysis on said operable optical span to determine how much change said operable optical span can tolerate before said operable optical span becomes an inoperable optical span in one or more case types.

The Frigo reference fails to add to the teachings of the Chang reference as it merely describes monitoring "the rate of signal degradation in the individual fibers of an optical communication network." The Frigo reference is describing an operating network. It is determining an operating system threshold for signal strengths transmitted to ONUs. It can not disclose determining acceptable margins to design changes of an optical span since the disclosed feeder fibers in the Frigo reference are already in operation and installed.

There is no suggestion in the references to meet the requirements of the claims. As stated at page 2, line 29 through page 3, line 4 of the specification:
"[T]raditional optical route design tools require the user to specify the amount of "unallocated margin" that is to be used in the design of an optical span which can result in the installation of a failure prone optical span or an underutilized optical span."
There is no description in the Chang reference to indicate that the OPNET simulation package is performing any different than the above description. The Frigo reference can not disclose any type of design changes of an optical span since the disclosed feeder fibers in the Frigo reference are already in operation and installed.

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Independent Claim 18 and dependent claims 19 through 24

Independent claim 18 requires selecting components that make-up the optical span; optimizing the optical span to make an operable optical span; performing a margin analysis on said operable optical span to determine how much change said operable optical span can tolerate in a plurality of case types before said operable optical span becomes an inoperable optical span, wherein said step of performing a margin analysis on said operable optical span further includes the steps of: receiving at least one parameter identifying incremental changes that are to be made to said operable optical span; incorporating an incremental change into at least one component of said operable optical span in accordance with a case type; analyzing the changed optical span; determining whether the changed optical span is an operable optical span; determining whether all of the components of the optical span and all of the case types have been analyzed; and presenting the results of the margin analysis to a user.

The Chang reference fails to disclose the requirements of the claims. First, the Chang reference nowhere describes the requirement, *inter alia*, of performing a margin analysis on said operable optical span to determine how much change said operable optical span can tolerate in a plurality of case types before said operable optical span becomes an inoperable optical span. As stated in the Office Action, the Chang reference does not disclose determining the margin of the optical span. Since there is no mention of optical span or determining a margin, there can be no disclosure or teaching that performing a margin analysis on said operable optical span to determine how much change said operable optical span can tolerate before said operable optical span becomes an inoperable optical span in one or more case types.

The Frigo reference fails to add to the teachings of the Chang reference as it merely describes monitoring "the rate of signal degradation in the individual fibers of an optical communication network." The Frigo reference is describing an operating network. It is determining an operating system threshold for signal strengths transmitted to ONUs. It can not disclose determining acceptable margins to design changes of an optical span since the disclosed feeder fibers in the Frigo reference are already in operation and installed.

There is no suggestion in the references to meet the requirements of the claims. As stated at page 2, line 29 through page 3, line 4 of the specification:

"[T]raditional optical route design tools require the user to specify the amount of "unallocated margin" that is to be used in the design of an optical span which can result in the installation of a failure prone optical span or an underutilized optical span."

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 477-9109.

Respectfully submitted,

ALCATEL
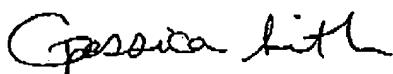
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